



Storm-Damaged Trees – Forest Stand Recovery

A Guide for Oklahoma Landowners

Storms frequently damage many acres of forestland in Oklahoma. Tree damage will range from “light,” where small branches in treetops are broken, to “heavy,” where trees snap off, topple over or lose most of their branches. Forest damage will be highly variable and depended upon tree species, stand age, location and other factors. Owners are faced with the task of assessing their forest damage and making decisions about their future. The level of damage, and personal ownership objectives, help dictate the best follow-up measures to take to restore the health and productivity of your forests. This bulletin is intended to help categorize damage and evaluate follow-up treatment needs.

Use Professional Help: One valuable piece of advice is to use professionals to provide you the best information and guidance available. A list of certified arborists is available on the [OFS Website](https://bit.ly/OFS-StormDamagedTrees) at: bit.ly/OFS-StormDamagedTrees.

Safety: Your first consideration should *always* be safety. When evaluating your stands, watch for loose, hanging branches in the tops of trees or leaning trees that can fall quickly and without warning. Wear personal protective equipment (PPE) and stay out of the woods when it is windy.

Forest Protection: Check forest stands for pest problems and potential fire danger over the next few growing seasons. Fallen trees and branches will create high fire risk when dry. Establish fire lines and take extra precautions to minimize wildfire risk this summer and fall. Many forest pests are opportunistic and thrive in areas where trees are damaged or under stress. Two years of drought followed by a major storm can open the door for insect problems, especially bark beetles and wood borers. These pests are difficult to eliminate, so be on the lookout for them and, if found, take appropriate action to minimize their spread.



Salvage: Salvage operations may be justified in commercial forest areas where there is enough merchantable timber on the ground or in standing but severely damaged trees to justify harvesting. Because of decay and pest problems, salvage operations should be done within the next few months if market conditions permit. Avoid damaging the remaining trees as much as possible, follow the forest water quality best management practices and practice safety first. Follow a salvage operation with an evaluation to determine other actions needed to restore the health of your forest.

Timber Stand Improvement: Removing hazardous or cull trees, and thinning, will help damaged stands recover more quickly. Evaluate stands again for TSI needs in 3 to 5 years. Some very general guidelines follow to help you determine the severity of damage and what to do next, depending upon the extent of the damage.

Softwoods (Pine, Cedar, Redwood, etc.)

Damage to pine stands depended on the age of the stand but fell into three broad categories.

Minor damage can be common in young stands, even with high wind speeds, and in older stands with lower wind speeds. Young pine stands, up to 4 to 5 years of age and 10 to 12 feet tall, often appear to suffer less damage and should recover without follow-up. Some trees may have bent over from the storm, but many will straighten on their own. Those that do not could be left alone or removed later as a pre-commercial TSI measure. Evaluate forest protection needs and monitor for pest buildup.

Moderate damage can be common in sapling, pole timber and mature stands with moderate wind speeds. Young stands over about 12 feet tall can often suffer moderate levels of limb or top breakage and leaning. Follow-up will depend upon the extent and severity of the damage. In areas where enough trees remain to recover your stand, (at least 100 to 300 trees per acre) then the cost of follow-up treatment is probably not justified. Older stands that suffered moderate levels of limb breakage should recover sufficiently without treatment. Evaluate forest protection needs and monitor closely for pest buildup.

Major damage occurs often in sapling, pole timber and mature stands where the highest wind speeds occurred. Sapling and pole timber stands bent over then break off. Older pine stands lose treetops and large branches from the crown and suffered considerable uprooting in some areas. If enough merchantable timber is destroyed or is on the ground, then consider a salvage operation if the market warrants. These stands need to be evaluated by a professional forester to determine whether a sufficient stand remains or whether complete salvage, site preparation and replanting are needed. "Pre-commercial" pine stands damaged beyond repair should be removed as part of a site preparation practice and replanted. Because of the increased fire and pest risk, evaluate forest protection needs immediately and annually for the next 3 years.

Hardwoods (Black Walnut, Oak, Pecan, Ash, etc.)

Minor Damage – in general, only small branches are affected and less than half the crown is damaged on most trees, even susceptible species such as elm, willow, maple and pecan.

What To Do – The impact on most of these trees will be relatively small. For most trees suffering only minor damage in rural areas, follow-up treatment is probably not warranted.

Moderate or Heavy Damage – on average, more than half the crown is affected, large branches were lost, or entire trees were uprooted.

What To Do – Salvaging large branches or fallen trees for firewood or wood products may offset costs and reduce hazardous fuel load. Remove hazard trees and consider a timber stand improvement practice (TSI) in 3 to 5 years. Retain some large, non-hazard trees for wildlife cavity trees.